HYDROLOGY

L21/D11
ONE PLAN

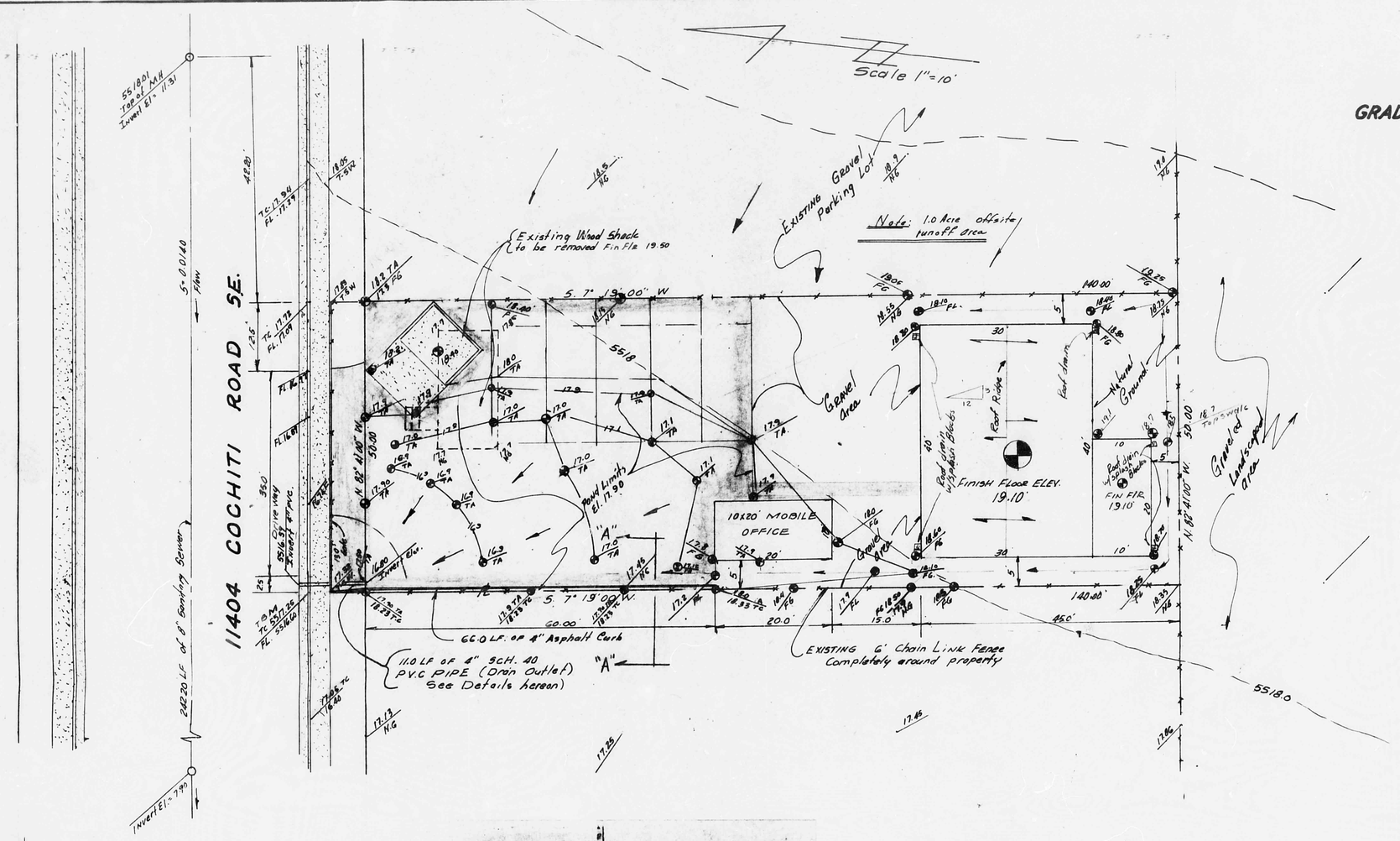
L21/D11

1 PLAN

GRADING AND DRAINAGE PLAN

FOR

11404 COCHITI RD. SE



DRAINAGE PLAN

The following items required by the City of Albuquerque Drainage Section concerning the drainage plan for Lot 8, Block 9, East Central Business Addition and contained hereon:

A. Vicinity Map
B. Grading and Drainage Plan
C. Calculations

The site is located on the south side of Cochiti Rd. S.E. between Dorothy RD. and Shirley Rd. The site is primarily a temporary storage area, and its terrain slopes east to west at about 1%. There is no significant offsite runoff affecting this tract of land. The runoff for the site will be detained and allowed to drain into Cochiti Rd. S.E. by means of a controlled outlet. This outlet is a 4" PVC pipe in accordance with the City Of Albuquerque standards.

The site does not lie within a designated flood hazard zone as shown by Flood Hazard Map.

The grading and drainage plan shows one drainage area. This drainage area consists of the entire site. The plan also shows that the total runoff for this project is ponded along the northwest portion of the front parking lot, having positive discharge by means of a 4" drain pipes draining under the curb and gutter into Cochiti Rd. all in conformance with the City of Albuquerque standards.

The plan shown:

A. Existing contours at one foot intervals.
B. Proposed grades indicated by contours and spot elevations.
C. Swales as indicated by legend shown.
D. Grading and Drainage Plan

CALCULATIONS

DETERMINE PEAK FLOW RATE INTO POND (ONSITE - OFFSITE

ROOF AND PAVEMENT AREA = 5143 S.F.
DIRT AREA(Natural gr.) = 1857 S.F.
TOTAL DRAINAGE AREA = ------
CONTRIBUTING TO POND = 7000 S.F.

COMPOSITE "C" FACTOR = $\frac{0.9(5143)+0.6(1857)}{7000} = \frac{5743}{7000}$

OFFSITE
A = 1.0 acre
C = 0.40
I = 2.40

"C" = 0.82

Q peak = CIA = ONSITE + OFFSITE

Q peak = $\frac{0.82\ (2.40)(7000/2.2)}{43,560}$ + .40 (2.4) (1.0)(2.2) = 2.80 cfs.

peak Q_{100} = 2.80 cfs INTO POND peak Q_{10} = 0.657(2.40) = 1.62 cfs

DETERMINE POND VOLUME REQUIRED TO CONTAIN ALL NEW RUNOFF

TOTAL HARD SURFACE = 5143 S.F.

VOLUME TO DETAIN = $0.9\frac{(2.40)}{12}(5143)+0.4\frac{(2.40)}{12}(1857) = 1076.0\ ft^3$

POND VOLUME CALAULATIONS (SEE ALSO PARKING/POND PLAN)

VOLUME = 1 = 250ft²x1.0÷250 + 620ft²x0.75÷541. + 670ft.x0.625 = 5625 + 110 x .40 = 396
= 1187.0 cu.ft. vs. 998.2 cu.ft required. (Note 100 yr. storm will overflow over driveway)

DETERMINE TIME TO EMPTY POND

DESIGN VOLUME = 10750 cu.ft.
APPROXIMATE OUTFLOW RATE = 0.5 cfs THRU 4" DIA. PVC PIPE
TIME = $\frac{(10750\ cu.ft.)(SEC)}{0.5\ cfs}$ = 21500 SEC. = 358 MIN.

NOTE: ACTUAL TIME TO EMPTY WOULD BE SIGNLY GREATER, BUT WILL BE IN ANY CASE LESS THAN 24 HOURS.

Emergency Spillway Calculations

The driving length will be used as the emergency spillway outlet. The length will be 30 feet and the elevation of both ends will be same (level) at 17.90. Therefore we will use the principle of a level weir

$Q = C\ L\ H^{3/2}$

$C = 3.33$ $L = 30.00$ feet $Q = 2.80$ cfs

$H = \left[\frac{Q}{C\ L}\right]^{2/3} = \left[\frac{2.80}{3.33(30)}\right]^{2/3} = 0.098ft$ or 1.11 inches

Note:
Elevation top of water surface over weir is 17.90 + 0.10 = 18.00
(Freeboard = 2" or 0.18
Freeboard elevation = 18.18. The Finish Floor Elevation of Building is 5519.18

APPROVED FOR DRAINAGE
9/23/83
DATE
SIGNATURE TITLE
ADVISE DRAINAGE INSPECTION WHEN GRADING EXECUTED

Revised 9/21/83

L21/D11

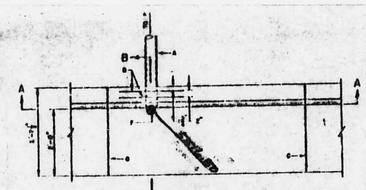
A & E ENGINEERING, INC.
CIVIL ENGINEERING · SURVEYING · LAND PLANNING
1330 SAN PEDRO N.E. · SUITE 101 · (505) 265-1791
ALBUQUERQUE, NEW MEXICO 87110

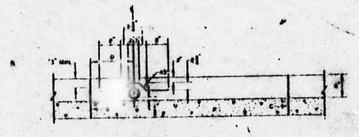
Revised 9/6/83
Revised 8/12/83

LEGEND

SPOT Elevation
Existing Contour
Direction of runoff
Top of curb T.C
Flow LINE F.L.
Finished Grade F.G.
Top of Asphalt pavement T.A
Concrete
Fence
Shaded Area is Asphalt Pavement.

Roof drains with splash Blocks



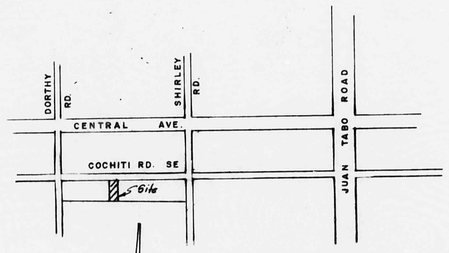


GENERAL NOTES:

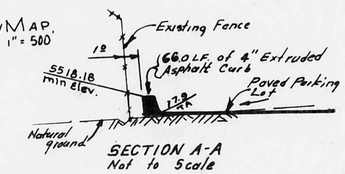
1. WHEN PLACING DRAIN THROUGH EXISTING CURB, REMOVE AND REPLACE ENTIRE STONE OF CURB AND GUTTER.
2. THE CITY DOES NOT ACCEPT RESPONSIBILITY FOR MAINTENANCE FOR ANY DRAIN LINES INSTALLED BY OR FOR PRIVATE PROPERTY OWNERS.

CONSTRUCTION NOTES:

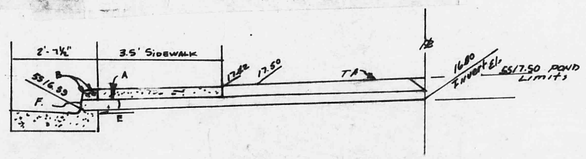
A. DRAIN, 4" OR SCH. 40 P.V.C. PIPE, 4" NOM. SIZE (MIN.) TO PROPERTY
B. 2-NO. 3 BARS, 2'-6" LONG, PLACED AS SHOWN.
C. COLD JOINT.
D. DISTANCE FROM ℄ OF DRAIN TO NEAREST JOINT, MUST BE WITHIN 18" MIN.
E. SLOPE ⅛" PER FT. WITHIN R.O.W.
F. DRAIN PIPE NOT TO PROTRUDE BEYOND CURB FACE
G. JOINT (SEALED) TO DRAIN TO BE AN EXPANSION JOINT



VICINITY MAP.
Scale 1" = 500



SECTION A-A
Not to Scale



SECTION B-B

LEGAL DESCRIPTION

Lot 8 of BLOCK 9 of EAST CENTRAL BUSINESS ADDITION RECORDED PLAT Filed July 15, 1946 (Zone Atlas L-21

Bench Mark

ACS Station 1-L21(R) is on the median strip of Central Ave. 5 feet North the centerline of the street and it is 81 ft. West of the Centerline of JUAN TABO BLVD. Elevation 5534.54